

What is claimed is:

1. A method of forming quantum dots, the method comprising:  
an  $\text{In}_x\text{Ga}_{1-x}\text{As}$  strained layer formed on a buffer layer; and  
 $\text{In}(\text{Ga})\text{As}$  quantum dots formed on the  $\text{In}_x\text{Ga}_{1-x}\text{As}$  strained  
5 layer.
2. The method of forming quantum dots of claim 1, wherein the buffer  
layer is made of  $\text{InAlAs}$ ,  $\text{InAlGaAs}$ ,  $\text{InP}$ ,  $\text{InGaAsP}$  or is a heterojunction layer of at  
least two of these four materials.
- 10 3. The method of forming quantum dots of claim 1, wherein in the  
 $\text{In}_x\text{Ga}_{1-x}\text{As}$  strained layer, "x" is 0.05 ~ 0.45.
4. The method of forming quantum dots of claim 1, wherein the thickness  
of the  $\text{In}_x\text{Ga}_{1-x}\text{As}$  strained layer is in a range of 0.5 nm ~ 10 nm.  
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5. The method of forming quantum dots of claim 1, wherein  $\text{In}(\text{Ga})\text{As}$   
quantum dots are formed by metal organic chemical vapor deposition (MOCVD),  
molecular beam epitaxial (MBE), or chemical beam epitaxial (CBE).
- 20 6. The method of forming quantum dots of claim 1, wherein the thickness  
of the  $\text{In}_x\text{Ga}_{1-x}\text{As}$  quantum dots is 3~10 monolayers.
7. The method of forming quantum dots of claim 1, wherein the  
 $\text{In}_x\text{Ga}_{1-x}\text{As}$  strained layer 5 and the  $\text{In}(\text{Ga})\text{As}$  quantum dots 7 can be stacked 1 to 30  
25 sets on top of one another.